

---

Subject: Re: What The Bleep Do We Know!?  
Posted by [Blazer](#) on Sun, 03 Sep 2006 02:44:05 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

NeoSaber wrote on Sat, 02 September 2006 15:07

Maybe my standards are too high, but the book *The Elegant Universe* was written for people who don't understand this stuff, yet it still went into decent detail about things like the double slit experiment, probability waves, and the uncertainty principle.

I used to have that book (strangely, someone stole it), and I agree it is written very well.

NeoSaber wrote on Sat, 02 September 2006 15:07

The clip makes a huge leap that is probably the biggest fault in the movie as well. It equates measuring to observing. When you observe, you "take in" your surroundings. When you measure, you go and interfere with your surroundings. An observer doesn't send something at the particle to interfere with it, but if you want to measure it, you have to shoot something back at it in order to mark its position.

The film specifically says that we do not know how to be an "inside" observer (observe something without affecting it). You don't have to shoot something at a particle to detect it, but you do have to interact with it in some manner, like allowing it to pass through something that has a measurable effect of its passing, etc.

NeoSaber wrote on Sat, 02 September 2006 15:07

On a macroscopic scale, you shine a light on a brick to examine it. On a subatomic scale, what can you shoot at a particle that won't mess it up? The smallest, most delicate object you can shoot at it is another subatomic particle. It's equal in force and disrupts the experiment. That's where the uncertainty principle and probability waves come from. If you leave it alone, you get a wave pattern, but if you interfere with it you get a particle pattern. You can't test what causes wave patterns because the test isn't "delicate" enough. Scientists then rely on probability waves as an untestable explanation of how wave patterns form.

Who says you have to "shoot something" at a particle to detect it? You are basically debunking the double slit experiment because you say they are firing a stream of particles at the single-particle projectiles in order to detect them and thus altering their behavior. Maybe you should publish this in the *American Journal of Physics*, to let all the other scientists in the world know why they are wrong

I think what you are failing to consider is that when there are NO DETECTORS, and we simply fire a SINGLE PARTICLE at a time through two slits, you get an interference pattern, which begs the question of, what the hell is the single particle interfering with? The only answer we have been able to come up with that works, is "itself", which sounds crazy but don't forget we have proven that a single particle can be in two locations at once.

It may interest you to know that even if they place a detector at only one of the slits, the interference pattern still disappears. And the experiment does not have to be done with the "smallest" particles, it has been demonstrated with neutrons, atoms and molecules as large as carbon-60 and carbon-70. Another interesting experiment shows that there is a similar effect by using slits in time (which can be measured without tampering) instead of space:

<http://physicsweb.org/articles/news/9/3/1/1?rss=2.0>

NeoSaber wrote on Sat, 02 September 2006 15:07

That's probably my biggest gripe with quantum physics. If the theory claims to be untestable, then its not science.

Dude, thats everyones gripe with quantum physics, including the scientists. It is the closest we have come so far to explaining the world...nobody is saying this is how it is and that's that...even if it was 100% provable, measurable, etc, most people still would not believe it, since most people seem to rely upon the biophysical way in which we perceive the world are are unwilling to consider that things they cannot see are real.

Whether you agree with the concepts in the film or not, you have to admit that it at least made you think about things, which was my only goal in exposing people to it.

---